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| 10/619,070 | 07/14/2003 | Nikolay Glushnev | GB920020068US1 | 6964 |

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HOFFMAN WARNICK & D'ALESSANDRO, LLC
75 STATE STREET
14TH FLOOR
ALBANY, NY 12207

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| EXAMINER |
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WOZNIAK, JAMES S

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2626

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10/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| Office Action Summary | Application No. 10/619,070 | Applicant(s) GLUSHNEV ET AL. | |
| | Examiner James S. Wozniak | Art Unit 2626 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 5/14/2007, the applicant has submitted an amendment, filed 8/14/2007, amending independent claims 1, 5, and 9, while adding claim 13 and arguing to traverse the art rejection based on the limitation regarding “a cut and paste code that indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation, extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case”

(Amendment, Pages 10-11). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

2. In response to new figures 2 and 3, which do not add new matter, the examiner has withdrawn the previous objection to the drawings. It is noted, however, that these drawings are not referenced in the disclosure, thus, raising the issue of a further drawing objection *(see below)*.

3. In response to amended claims 1, 5, and 9 and the applicant's associated comments *(Amendment, Page 9)*, the examiner has withdrawn the previous 35 U.S.C. 112, second paragraph rejection directed to indefinite claim language *(i.e., Prior OA, item 3)*.

4. In response to amended claims 1 and 9, and the applicant's associated comments (*Amendment, Pages 9-10*), the examiner notes that some aspects of the previous 35 U.S.C. 112, second paragraph rejection directed to missing steps have been withdrawn. The applicant's arguments that the "storing" of claims 1 and 9 "implicitly, if not explicitly, include the generating and extending processes" noted in said previous rejection have been fully considered, but are not convincing because, in the claims, there is no recited generation and extending of the cut and paste code. In other words, something cannot be stored if it has not been generated, and in the claims no generation or extension has been recited. Thus, these steps are missing and required and some aspects of the previous 35 U.S.C. 112, second paragraph rejection directed to missing steps/elements are maintained (*see below*).

5. The inclusion of the term "computer implemented" in claims 1 and 5 and the amendment of claim 9 does not overcome the previous 35 U.S.C. 101 rejection because:

Claim 1 does not involve the transformation of input data (*i.e., dictionary words*) to produce/generate orthographic variations having cut and paste codes extended by a gloss code (*i.e., only storing is claimed*) and the stored information of claim 1 is not directed to a "useful, tangible, and concrete result" because the stored data is abstract and not output to a user as any type of concrete result. Thus, the 35 U.S.C. 101 rejection of claim 1 is maintained.

Claim 5 is still directed to an abstract database structure that does not transform input data or produce a "useful, tangible, and concrete result".

Claim 9 has 35 U.S.C. 101 issues similar to claim 1, thus, the rejection of this claim is maintained for similar reasons. Also, the body of claim 9 is still defined in terms of the program

and not the method that is performed when the computer readable medium storing/encoding a computer program is read by a computer (*i.e.*, --*A computer readable medium storing a computer program, which when executed, performs steps comprising-- should be claimed, rather than "A computer program product...for performing substantially the steps of: "*). For this reason also, the 35 U.S.C. 101 rejection of this claim is maintained.

Response to Arguments

6. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to **Claims 1, 5, and 9**, the applicants argue that Kaplan et al (*U.S. Patent: 5,594,641*) fails to teach "a cut and paste code extended by a gloss code" by stating that nowhere in Kaplan is such a teaching found (*Amendment, Pages 10-11*). These arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out *how specifically the language of the claims* patentably distinguishes them from the references.

In response to such arguments, however, the examiner notes that Kaplan does teach "a cut and paste code that indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation, extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case". Specifically, Kaplan discloses symbolic tag codes indicative of orthographic variations of word stems (*Col. 4, Line 19- Col. 5, Line 5*). These tag codes indicate how many

letters should subtracted and added to a base form to arrive at a particular dictionary term (*Col. 4, Line 19- Col. 5, Line 5; and example of the "arrive" word stem from which 1 letter, "e", is subtracted and to which 3 letters, "ing" are added to form "arriving", Figs. 10 and 11A*). The tag codes are further expanded by an indication of converting between upper and lower case for different word forms (*Col. 7, Line 56- Col. 8, Line 13*). Thus, for at least these reasons, the examiner notes that the tag codes taught by Kaplan anticipate the claimed "cut and paste code that indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation, extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case".

The art rejections of the dependent claims are traversed for reasons similar to the independent claims (*Amendment, Pages 11-12*). In regards to such arguments, see the response directed towards claim 1.

Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following figure(s) not mentioned in the description: 2 and 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the figure(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 1-4 and 9-13** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps in claims 1 and 9 are: generating a cut and paste code by replacing an explicit orthographic variation word form with a notation indicating how many characters should be cut from the end of a word's surface form and pasted to produce the variation (Paragraph 0026) and extending the cut and paste code by generating a gloss code based on the case of a word and the orthographic variation (Paragraphs 0041-0050). In other words, claims 1 and 9 intend to refer to processes for producing a linguistic dictionary, but fail to recite how the claimed dictionary results are achieved.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Art Unit: 2626

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. **Claims 1-13** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 and 9 are drawn to a method for storing a linguistic dictionary. To be statutory, a claimed process must either: (A) result in a physical transformation for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application which produces a useful, tangible, and concrete result. See *Diehr*, 450 U.S. at 183-84, 209 USPQ at 6 (quoting *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)) (“A [statutory] process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing.... The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.”). In the present case, the final result of Claims 1 and 9 only refers to an abstract stored dictionary data, but the claim does not recite the generation of such a result. Since the presently claimed invention neither performs a transformation, nor actively produces a useful, concrete and tangible result, claims 1 and 9 are directed to non-statutory subject matter.

As such, claims 1 and 9 are directed to non-statutory subject matter. The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claims 1 and 9, and thus, are also directed to non-statutory subject matter.

Claim 5 is drawn to an abstract dictionary data structure. In order for a claimed invention to be considered statutory under 35 U.S.C. 101, it must be useful and accomplish a

Art Unit: 2626

practical application. That is, it must produce a “useful, concrete and tangible result” (*State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02*). In the present case, claim 5 only represents an abstract dictionary data structure, which does not produce any type of result. As such, claim 5 is directed to non-statutory subject matter. Also, it is pointed out that claims directed to a data structure are nonstatutory. See, e.g., *Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760* (claim to a data structure *per se* held nonstatutory). The dependent claims fail to overcome the 35 U.S.C. 101 rejection directed towards independent claim 5, and thus, are also directed to non-statutory subject matter.

Claim 9 is drawn to a “program product” *per se* as recited in the preamble and as such is non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760* (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a *claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory*. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not

Art Unit: 2626

define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. Dependent claims 10-12 fail to overcome the 35 U.S.C. 101 rejection applied to claim 9, and thus, are also directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. **Claims 1, 3, 5, 7, 9, 11, and 13** are rejected under 35 U.S.C. 102(b) as being anticipated by Kaplan et al (*U.S. Patent: 5,594,641*).

With respect to **Claims 1 and 5**, Kaplan discloses:

Obtaining orthographic variations of dictionary words (*receiving word stems and variations, Col. 4, Lines 19-39*);

Explicitly storing substantially all orthographic variations of words in a finite state transducer database (*word stems and all variations stored in a finite state transducer database, Col. 4, Line 19- Col. 5, Line 5*);

Storing, for each of the orthographic variations, a cut and past code, which indicates how many character should be cut from the end of a surface form of a word and pasted to produce a particular variation, extended by a gloss code that indicates whether at least part of the

Art Unit: 2626

orthographic variation should be converted between upper and lower case (*stored coded mapping of variation rules merged into a lexical transducer, wherein variations are cut and pasted onto a stem form, Col. 4, Line 19- Col. 5, Line 5 and Col. 8, Line 59- Col. 9, Line 6; and Fig. 10-11a.; further tag codes that are indicative of a change in case between a stem and variant form, Col. 4, Line 40- Col. 5, Line 5; and example of case variation in a FST, Col. 7, Line 56- Col. 8, Line 13*).

With respect to **Claims 3, 7, and 11**, Kaplan discloses the tag code indicative of a change of case of any letter in a word sequence as applied to claim 1, thus it would be inherent within the scope of the teachings of Kaplan that a tag code would indicate the conversion of a first character to lower or upper case, especially in determining a relation between a dictionary term and a capitalized first word in a query sentence when the created dictionary is utilized in an information retrieval system (*Col. 9, Lines 19-53*).

With respect to **Claim 9**, Kaplan discloses the method for producing a lexical transducer as applied to claim 1 as implemented as a program stored on a computer readable medium (*Col. 7, Lines 46-55*).

With respect to **Claim 13**, Kaplan teaches a tag code indicative of a variation for a plurality of words (*Fig. 11a. and Col. 4, Line 40- Col. 5, Line 5*), wherein a variation includes an upper/lower case indicator, as applied to Claim 1.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. **Claims 2, 6, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al in view of Lee et al (*U.S. Patent: 4,939,639*).

With respect to **Claims 2, 6, and 10**, Kaplan discloses the method for generating a lexical transducer as applied to Claim 1. Kaplan does not specifically suggest form variation between single and double character sequences, however Lee recites a linguistic dictionary that indicates corresponding single and double character sequences (*Col. 10, Line 55- Col. 11, Line 6*).

Kaplan and Lee are analogous art because they are from a similar field of endeavor in linguistic dictionary processing. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Kaplan with the correlation of related single and double character sequences in order to provide a means for transliteration for characters that do not appear in a user's language (*Lee, Col. 10, Lines 43-54*).

16. **Claims 4, 8, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al in view of Schabes et al (*U.S. Patent: 6,424,983*).

With respect to **Claims 4, 8, and 12**, Kaplan discloses the method for generating a lexical transducer as applied to Claim 1. Kaplan does not specifically suggest storing composite word

forms having unaccented characters and storing expanded word forms having the base letter form and an accent mark, however Schabes discloses a lexicon utilizing a finite state machine that associates words without accents (composite form) with alternative word forms having the base letters and accent marks (expanded form) (*Col. 21, Line 66- Col. 22, Line 30*).

Kaplan and Schabes are analogous art because they are from a similar field of endeavor in linguistic dictionary processing. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Kaplan with the concept of incorporating accent data into a lexicon as taught by Schabes in order to enable dictionary use in a non-English language context (*Schabes, Col. 22, Lines 17-21*).

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Porter ("*An Algorithm for Suffix Stripping*," 1980)- discloses the use of cut and paste codes for dictionary space reduction.


Lu et al ("*Attribute Value Extraction and Standardization in Data Integration*," 2001)- discloses pattern codes defining variations in database words.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
10/2/2007


PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER